

We claim:-

1. A method for reducing the amount of residual monomer in aqueous polymer dispersions by aftertreatment with an initiator system, which comprises
5 aftertreating the aqueous polymer dispersion with addition of an initiator system essentially comprising
- 10 a) from 0.001 to 5% by weight, based on the total monomer amount used to prepare the polymer dispersion, of an inorganic salt of persulfuric acid,
- 15 b) from 0.005 to 5% by weight, based on the total monomer amount used to prepare the polymer dispersion, of a methyl ketone, and
- c) optionally, catalytic amounts of a metal ion which is able to exist in a plurality of valence states.
2. A method as claimed in claim 1, wherein the methyl ketone is a compound of the formula
- 20
$$R^1-C(=O)-CH_3$$
- where R^1 is a C_1 to C_5 alkyl group which can comprise functional groups and/or can be olefinically unsaturated.
- 25 3. A method as claimed in claim 1 or 2, wherein the inorganic salt of persulfuric acid is a sodium, potassium and/or ammonium salt.
4. A method as claimed in either of claims 2 and 3, wherein R^1 is a methyl, ethyl, n-propyl, isopropyl, n-butyl or tert-butyl group.
- 30 5. A method as claimed in any of claims 1 to 4, wherein the inorganic salt of persulfuric acid and the methyl ketone are supplied to the aqueous polymer dispersion during the aftertreatment simultaneously by way of separate feeds.
- 35 6. A method as claimed in any of claims 1 to 5, wherein the major amount of the metal ions are added to the aqueous polymer dispersion in the aftertreatment prior to the inorganic salt of persulfuric acid and the methyl ketone.
- 40 7. A method as claimed in any of claims 1 to 6, wherein the total amount of metal ions is from 1 to 1000 ppm.

8. A method as claimed in any of claims 1 to 7, wherein said metal ions are iron, copper, manganese, vanadium, nickel, cobalt, titanium, cerium, chromium and/or silver ions.
- 5 9. A method as claimed in any of claims 1 to 8, wherein the aftertreatment is conducted in the presence of complexing agents.
10. A method as claimed in any of claims 1 to 9, wherein the pH of the polymer dispersion during the aftertreatment is ≥ 2 and ≤ 10 .